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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/591,622	06/09/2000	SHINYA MATSUDA	15162/02100	3045

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 09/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/591,622

Applicant(s)

MATSUDA ET AL.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-9 and 11-17 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 5 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakahara et al. (US 5,563,465). Nakahara shows (figs. 2 and 4) an actuator comprising: a plurality of displacing devices (1, 2) for generating displacements; a compound member (3), connected to the displacing devices (1, 2); a base member (8) for holding base ends of the of the displacing devices (1, 2) to which the compound member (3) is not connected; a pressing member (e.g. 7) for pressing the compound member to an object (4) to be driven; a driver for resonantly driving the displacing devices so as to move the compound member along an elliptic or a circular trail (col. 1, ll. 15-30). Recitation of the natural frequency of the displacing devices in a first natural vibration mode and a second natural vibration mode is regarded as a goal of the invention. As this description provides for no further structural limitation to the structure of claim 1, it is regarded as a goal of the invention but not carrying patentable weight. His fig. 4 shows at least one of the plurality of displacing devices includes an elastic member (at the sides of the hollowed out portion of the compound member) as a part thereof.

Note that in Nakahara the only driven components are the displacing devices and their compound member. If other components were to substantially vibrate, which description itself is relative, the structure would be unstable. The movement of the displacing devices and compound member are shown in figures 3(a) to 3(d), such motion as shown would not cause substantial vibration to any other component. Additionally, as Nakahara shows the structural features of the claimed invention, his invention thus operates similarly to that of the Applicants, or else the Applicants' invention does not operate as claimed. Regarding the recitation in claim 2 that the displacing devices have first and second natural frequencies and respective vibration modes, this is a common feature to vibrating devices, and Nakahara's appears as no exception. They can be coherently driven at different frequencies. A resonant frequency is after all, described by a Fourier series, which harmonic frequencies each show a different mode.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takekida (JP 53-82286) in view of Nakahara et al. (US 5,563,465). Takekida shows (figs. 1-2b) an actuator comprising: a plurality of displacing devices (4a, 4b) for generating

displacements; a compound member (tip of 5a), connected to the displacing devices (4a, 4b); a base member (not numbered) for holding base ends of the displacing devices (4a, 4b) to which the compound member is not connected; a driver (V1, V2) for resonantly driving the displacing devices so as to move the compound member along an elliptic or a circular trail (see particularly compound vibration in fig. 2b). Takekida does not show a pressing member for pressing the compound member to an object to be driven. It would have been obvious to one having ordinary skill in the art to employ a pressing member, such as that shown by Nakahara et al. in the device of Takekida at the time of his invention was made to insure a good contact between the compound and driven members.

Allowable Subject Matter

Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 6-9 and 11-17 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art fails to show or fairly suggest structure for driving at a first frequency which is a higher one of a resonant frequency of the first and second displacement devices nor does it suggest driving at a second frequency which is the lower of the antiresonant frequencies of the two displacement devices. The current sensors of other independent and allowed claims are also not shown nor fairly suggested by the prior art.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

tmd
tmd

August 30, 2002

Thomas M. Dougherty
THOMAS M. DOUGHERTY
PRIMARY EXAMINER
GROUP 2400
2600